WE CLAIM:

1. A method for forming a telescoped nanotube, comprising:
    - (a) providing a multiwall nanotube comprised of an outer shell, a plurality of concentric inner shells, and an inner core, each of said outer shell, inner shells, and inner core having a first end and a second end in opposition thereto;
    - (b) attaching the first end of the outer shell to a conductive substrate so as to be in electrical communication therewith;
    - (c) removing the second end of the outermost shell and of the concentric inner shells, revealing the second end of the inner core;
    - (d) attaching a nanomanipulator to the second end of the inner core, said nanomanipulator effective to partially extract the inner core from the outer shell; and
    - (e) partially extracting the inner core from the outer shell and the concentric inner shells, thereby telescoping one segment of the multiwall nanotube.

2. The method of claim 1, further comprising:
    - (f) detaching the nanomanipulator from the inner core.

3. The method of claim 2, wherein the inner core is comprised of secondary concentric inner shells and a secondary inner core, each having first and second opposing end and steps (c) to (f) are repeated on the inner core so that multiple segments of nanotube are sequentially telescoped.

4. The method of claim 1, wherein the multiwall nanotube is a bamboo multiwall nanotube.

5. The method of claim 1, wherein the multiwall nanotube comprises a material selected from the group consisting of GaSe; $NiCl_2$; TiO_2; Sb_2S_3; $K_4Nb_6O_{17}$; $PbNb_mS_{(2m+1)}$, where m is an integer from 1 to 10; $B_xC_yN_z$, wherein x is about 0 to about 1, y is about 0 to about 3, and z is about 0 to about 4; MX_n where M is selected from the group consisting of Nb, V, Zr, Hf, Re, Pt, Ta, W, and Mo, X is selected from the group consisting of S, Se, and Te, and is n is 2 or 3; and $W_aMo_bC_cS_2$ wherein a is about 0 to about 1, b is about 0 to about 3, and c is about 0 to about 4.

6. The method of claim 5, wherein the material is carbon.

7. The method of claim 1, wherein the number of inner shells ranges from about 3 to about 1000.

8. The method of claim 7, wherein the number of inner shells ranges from about 3 to about 100.

9. The method of claim 8, wherein the number of inner shells ranges from about 3 to about 50.

10. The method of claim 1, wherein step (c) is conducted using a shaping electrode to remove material from the second end of the outer shell while the nanotube and the shaping electrode are under a potential difference.

11. The method of claim 10, wherein the potential difference is no more than about 10 volts.

12. The method of claim 11, wherein the potential difference is no more than about 5 volts.

13. The method of claim 12, wherein the potential difference is about 0.5 to about 3.0 volts.

14. The method of claim 10, wherein the potential of the nanotube is at or near ground.

15. The method of claim 10, wherein the shaping electrode contacts the nanotube during step (c).

16. The method of claim 10, wherein the shaping electrode does not contact the nanotube during step (c).

17. The method of claim 1, wherein steps (c) and (d) occur in the same event.

18. A device comprising a telescoped multiwall nanotube comprised of:

(a) an outer shell having a cylindrical wall, a closed end, and an interior cavity defined by the cylindrical wall and the closed end; and

(b) a telescoped segment partially housed within the interior cavity of the outer shell and partially extending from the outermost shell, wherein said telescoped segment has a cylindrical segment wall, a closed segment end, and a segment cavity.

19. The device of claim 18, wherein the telescoped segment comprises a plurality of concentric telescoped segments each partially housed within the segment cavity of the concentric telescoped segment surrounding it and each partially extending from the segment cavity of the telescoped segment in which it is housed.

20. The device of claim 19, further comprising an innermost concentric telescoped segment having a closed end on the partially extended portion.

21. The device claim 20, wherein the multiwall nanotube comprises a material selected from the group consisting of: GaSe; $NiCl_2$; TiO_2; Sb_2S_3; $K_4Nb_6O_{17}$; $PbNb_mS_{(2m+1)}$, where m is an integer from 1 to 10; $B_xC_yN_z$, wherein x is about 0 to about 1, y is about 0 to about 3, and z is about 0 to about 4; MX_n where M is selected from the group consisting of Nb, V, Zr, Hf, Re, Pt, Ta, W, and Mo, X is selected from the group consisting of S, Se, and Te, and is n is 2 or 3; and $W_aMo_bC_cS_2$ wherein a is about 0 to about 1, b is about 0 to about 3, and c is about 0 to about 4.

22. The device of claim 21, wherein the material is carbon.

23. The device of claim 18, wherein the concentric telescoped segment is comprised of from about 3 to about 1000 concentric inner shells.

24. The device of claim 23, wherein the concentric telescoped segment is comprised of from about 3 to about 100 concentric inner shells.

25. The device of claim 24, wherein the concentric telescoped segment is comprised of from about 3 to about 50 concentric inner shells.

26. The device of claim 18, wherein the concentric telescoped segment is movable.

27. The device of claim 26, wherein the concentric telescoped segment provides a static spring force.

28. The device of claim 26, wherein the concentric telescoped segment provides for substantially frictionless rotation.

29. The device of claim 26, wherein the concentric telescoped segment provides for substantially frictionless extension and retraction.

30. A bearing comprising the device of claim 26.

31. A switch comprising the device of claim 26.

32. A resistance potentiometer comprising the device of claim 26.